ABSTRACT OF THE DISCLOSURE

Disclosed herein is an additive injection system for in-situ soil remediation by electrokinetics. The additive injection system for in-situ soil remediation by electrokinetics can prevent soil in the vicinity of an anode from being dried and reduce the risk of secondary contamination in the deep layer of soil upon electrokinetically decontaminating saturated or unsaturated soil.

The additive injection system for in-situ soil remediation by electrokinetics can prevent an excess of flushing solution from flowing into soil, upon removing contaminants from soil by injecting flushing solution and water, thereby reducing the risk of secondary contamination in the deep layer and uncontaminated region of soil.

The additive injection system is used in in-situ soil remediation by electrokinetics for removing heavy metals and organic substances present in a contaminated soil by applying electric power to an anode and a cathode to induce electroosmosis and electromigration in the soil wherein the anode and the cathode are oppositely installed in the soil and the anode is spaced apart from the cathode by a fixed distance. The additive injection system comprises a cylindrical housing 2, an electrode 4 selected from an anode

and a cathode and positioned in the cylindrical housing 2, a plurality of discharging slots 1 formed in the cylindrical housing 2, a filter 3 adhered to the inner surface of the housing 2, a negatively charged filler 5 filled in the housing 2 and surrounding the electrode 4, and flushing solution 7 supplied to the filler 5 through an injection nozzle 6 in such a manner that flushing solution 7 is maintained at a constant level and flows into the soil by electroosmosis wherein the filter 3 has a permeability higher than the filler 5, and the filler 5 has a permeability lower than the soil.

Further disclosed is a method for injecting an additive using the system by inducing electroosmosis between negatively charged filler 5 particles surrounding an electrode 4 to allow water and flushing solution 7 to flow into soil, wherein the filler 5 particles have a permeability lower than the soil.